INVESTOR DECK

QUANT CAPITAL

December 2024

Introducing our new Dynamic Multi Strategy Volatility Fund

Dynamic Multi-Strategy Volatility Fund for Consistent Alpha Generation

OBJECTIVE

Systematic Volatility Strategy

Creating a systematic volatility trading strategy leveraging S&P 500 (SPY) and VIX futures, focusing on market regime identification, dynamic signal generation, and robust risk management to optimize returns across varying market conditions.

Traditional Strategies in Volatility

- Focus on hedging and risk reduction during volatile markets.
- Aim to protect portfolio value without actively seeking returns or exploiting inefficiencies in volatility pricing.

INNOVATION

Innovation in Application

Regime-based trading: Identifies market conditions like contango, backwardation, and v/a-shapes to tailor trading strategies. Incorporates adaptive allocation to dynamically respond to shifts in term structure.

Dynamic adjustments: Term structure signals for precise decision-making.

How is our strategy “Interesting”

- Employs systematic, quantitative methods tailored to volatility trading.
- Trade the term structure based on volatility regimes rather than static metrics.
- Remains risk-neutral to parallel shifts in the term structure, avoiding unnecessary exposures.

MAIN IDEA

We Harness Volatility Through Trading Multiple Strategies Across the Term Structure.

By leveraging VIX term structures, we exploit inefficiencies through dynamic positioning in SPY and VIX futures, using a multi-strategy framework of RSI-based, F1-VIX-based, and regime-based indicators. This approach adapts to market regimes like contango, backwardation, and transitional shapes, ensuring consistent alpha generation with robust risk management.

METHODOLOGY

VIX and VIX-Futures Insights Driving Strategic Decisions

Strategy Framework

RSI Strategy

Purpose: Identify market momentum using RSI signals.

Key Signals: Overbought (RSI > 65) or oversold (RSI < 30).

Approach: Adjust F30 and F60 futures positions based on flagged signals.

Outcome: Exploit momentum while limiting risk in uncertain conditions.

F1 - VIX Strategy

Purpose: Leverage the spread between F1 VIX futures and the spot VIX index to predict market trends.
Key Signals: Identify steepening (<-2) or flattening (> -2) term structure trends.
Approach: Adjust positions dynamically, going long or short on F30 and F90 futures based on the spread.
Outcome: Capture term structure shifts for consistent returns while managing risk.

Regime-Based Strategy

Purpose: Exploit VIX term structure dynamics to adapt to market conditions.
Key Regimes: Contango, Backwardation, V Shape, and A Shape.
Approach: Dynamically adjust SPY and VIX futures positions based on regime signals.
Outcome: Consistent returns by leveraging structural inefficiencies.

Future Strategies

Purpose: Explore advanced volatility models and asset classes.

Approach: Leverage machine learning and cross-asset strategies.

Outcome: Enhance diversification and unlock new alpha opportunities.

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Dynamic Volatility Strategy Framework

Data Utilization

Universe: S&P 500 and VIX term structure data (f30–f240).

Derived Indicators: RSI (Relative Strength Index) for f30.

Term structure differences (e.g., f30 vs f120 vs f210) for regime detection.

Prediction Methodology

Regime Classification: Define market regimes (e.g., contango, backwardation, v-shape, a-shape) using the VIX term structure.

Signal Generation: Identify critical patterns such as flattening or steepening in the futures curve.

Portfolio Construction

Regime-Based Allocation: Contango and A-Shape: Long SPY and short specific VIX futures.
V-Shape and Backwardation: Neutral SPY, short f3, or selective VIX future strategies.
Flat Market: Minimal exposure with hedged positions.

Optimized Risk-Return Profile: Combines diversified strategies with robust risk management mechanisms,

Key Indicators

RSI Thresholds: Identify overbought and oversold conditions.

VIX Slopes: f30–f210 differences signal market regimes.

Volatility Spread: f1–f3 highlights short-term sentiment.

Cumulative Returns: Adjustments triggered by drawdowns.

Risk Management:

Cool-Down Mechanism: Trades sidelined after a significant loss (e.g., > 5%) to prevent compounding losses.

Constraints: Position size limits and diversified exposure to maintain scalability and liquidity.

Drawdown Mitigation: Adjust positions dynamically based on volatility metrics and cumulative returns.

Performance Optimization

Expected Returns: Systematic backtesting and out-of-sample validation to refine parameters and confirm robustness.

Volatility: Adaptive positioning reduces exposure to extreme market conditions.

Correlation Analysis: Dynamic diversification across sub-strategies to reduce reliance on any single market condition.

COMPETITIVE ADVANTAGE

Dynamic, Regime-Based Strategy for Consistent Risk-Adjusted Returns with Scalable Execution

Regime-Specific Approach

Data-Driven Insights

Tailors positioning to distinct market regimes identified through VIX term structure analysis, capturing inefficiencies in contango, backwardation, and transitional shapes.

Systematic Approach

Predictive Indicators

Leverages quantitative indicators to generate precise signals, eliminating emotional biases and ensuring consistent execution.

Risk-Adjusted Performance

Optimized Returns

Combining RSI-based, F1-VIX-based, and Regime-based strategy approaches to achieve higher diversification, optimizing performance while minimizing risk.

Scalability

High Liquidity Universe

Focus on SPY and VIX futures ensures high liquidity and supports large-scale asset management without compromising execution.

Integrated Multi-Strategy Approach for Superior Risk-Adjusted Performance

Cumulative Combined Strategy Returns (2007-2024)

The combined strategy integrates the RSI-based, F1-VIX-based, and Regime-based approaches to leverage their unique strengths. By blending momentum analysis, term structure insights, and market regime identification, it creates a dynamic and adaptive framework that ensures robust performance across varying market conditions while reducing reliance on any single methodology.

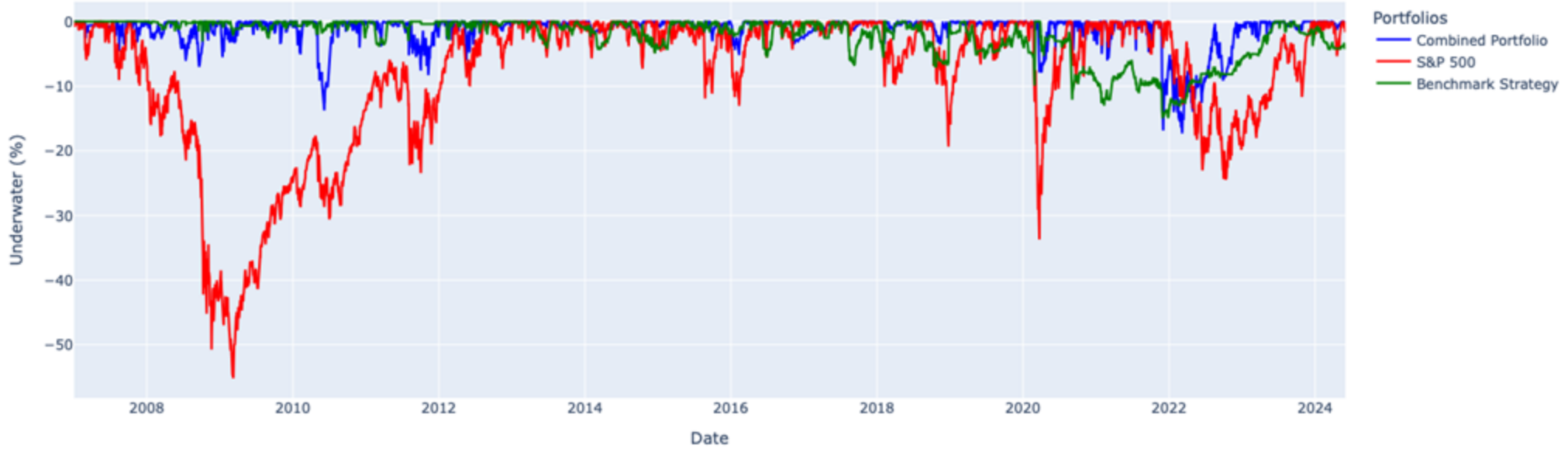
Benchmarking the Combined Strategy

Metric	Combined Strategy	Benchmark Strategy	SPY
Annualized Returns	20.81%	14.74%	8.16%
Volatility	10.90%	9.55%	19.97%
Sharpe Ratio	1.789	1.486	0.492
Sortino Ratio	1.887	2.278	0.601
Max Drawdown	-17.30%	-14.93%	-55.18%
Correlation to SPY	0.9654	0.9440	1.000

You'll forget what being under water feels like.

Backtesting Results

Fund vs S&P 500 Underwater Plot (2015-2024)



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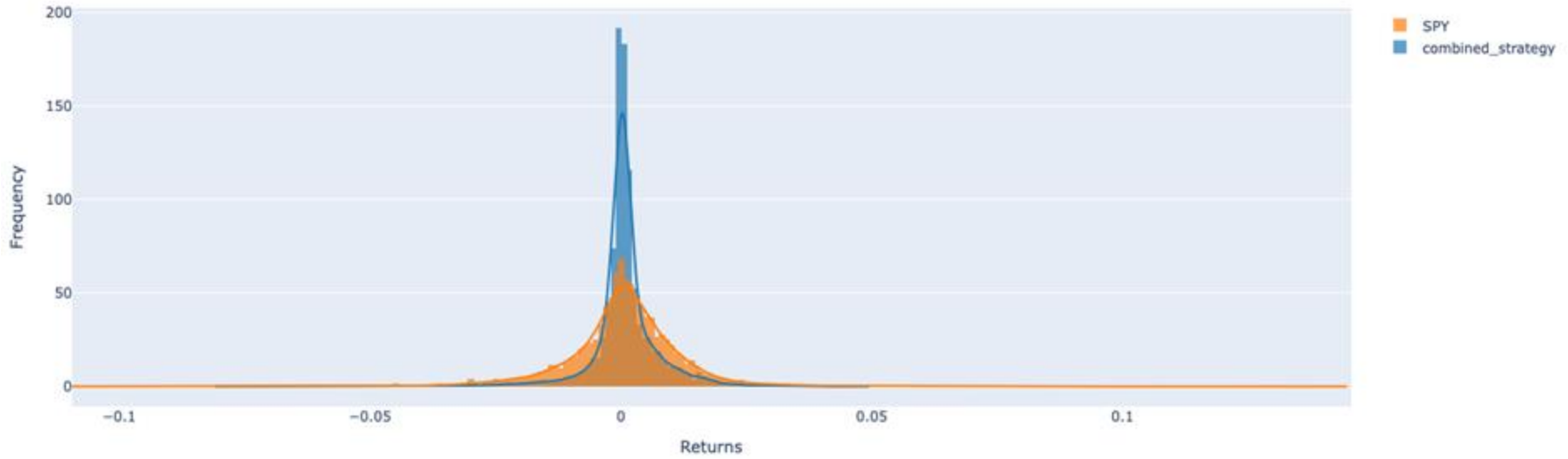
We don't let the extremes reach you.

Backtesting Results

Distribution of Portfolio Returns



The returns are so consistent, it is almost boring. But Hey, you are making more money.

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Integrated Strength and Superior Performance

Diversification Benefits

The combined strategy outperforms individual components by balancing methodologies, achieving a 20.81% annual return with lower volatility (10.90%) compared to 16.54% for RSI-only strategies.

Risk-Adjusted Superiority

Sharpe and Sortino ratios (1.789 and 1.887) significantly outperform standalone strategies and benchmarks like SPY, with a maximum drawdown of -17.30%, showcasing effective risk management.

Benchmark Comparison

The combined strategy outperforms SPY (9.93% annual return, 19.95% volatility) and systematic momentum strategies, with higher returns and lower drawdowns, emphasizing robust design and execution.

We believe we can slowly scale our strategy to $500M.

WE'RE RAISING

$100M

BY JANUARY 2025

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FEASIBILITY

Ensuring Efficient Execution and Sustainable Growth for Our Multi-Strategy Volatility Fund

Transaction Costs

Assumption: Trading costs are not explicitly accounted for, allowing focus on theoretical performance optimization.

Liquidity

Instrument Selection: Focus on SPY and VIX futures ensures high liquidity, enabling efficient execution even in volatile market conditions.

Capacity

Scalability: The strategy is designed to handle up to $800M in assets by optimizing trade sizes and managing market impact without compromising returns.

Operations

Infrastructure: Processes leverage remote computing clusters for efficient data processing and execution.
Regulatory Compliance: Adheres to all financial regulations, ensuring transparency and operational integrity.

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Appendix

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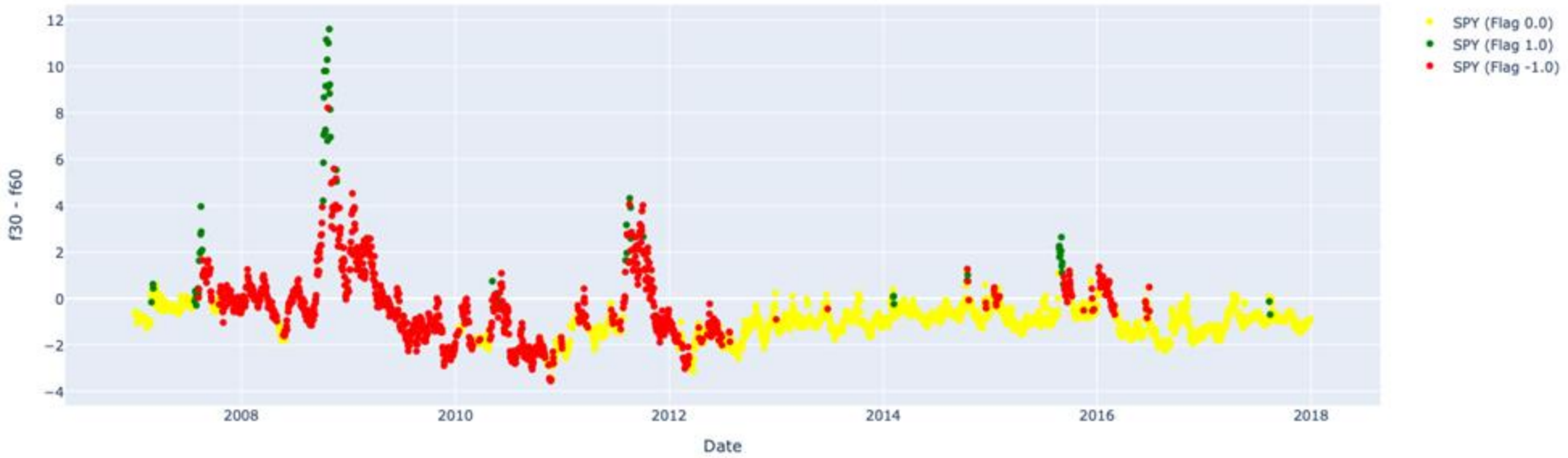
RSI Momentum: Categorizing signals to identify market conditions for opportunities while minimizing exposure.

RSI Flag indicator on the time series f30 - f60

Backtest Performance (2007-2017)



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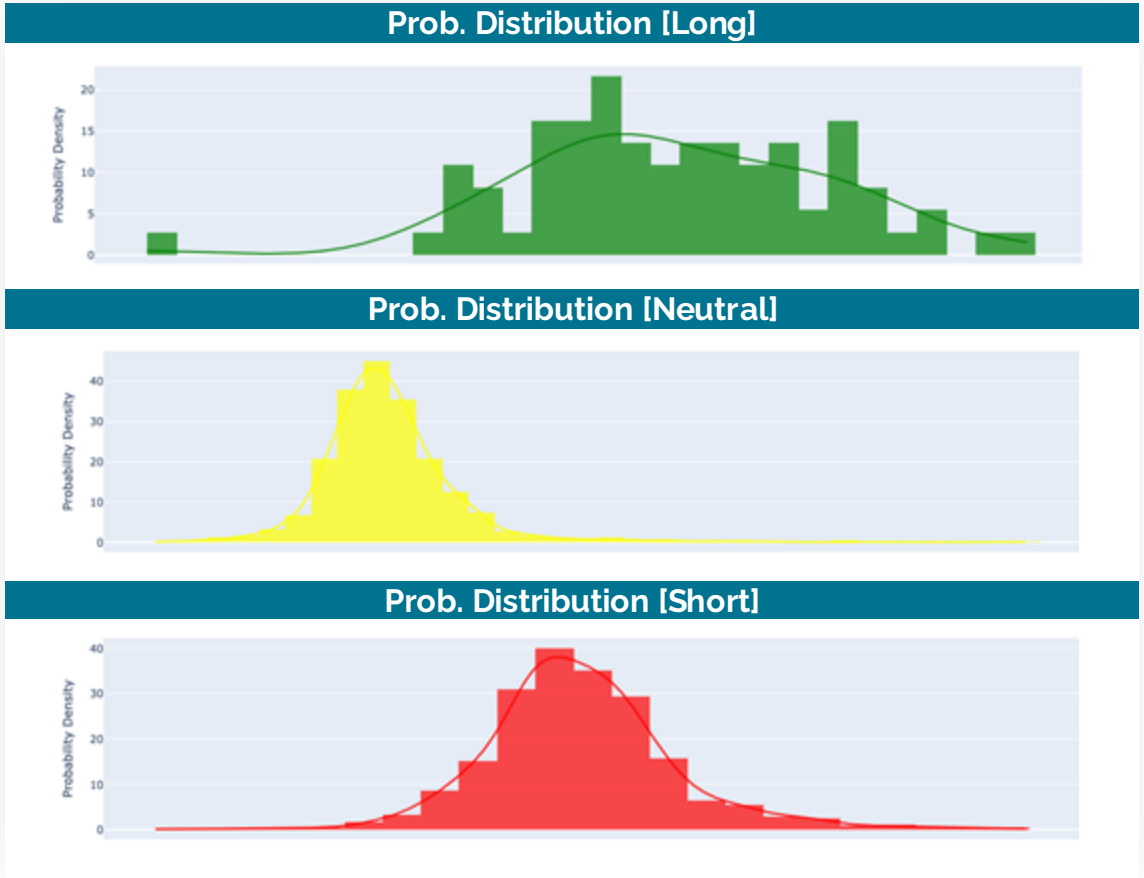
Validated Effectiveness Through Favorable Risk-Reward Distribution



Flag	RSI Lagged	f30	F1 (f30)	F2 (f60)
1 (green)	> 65	-	Long	Short
-1 (red)	< 65	> 20	Short	Long
0 (yellow)	< 65	< 20	-	-

Trading Decision Criteria

The distribution validates the strategy's effectiveness by showing a favorable risk-reward profile with positively skewed returns for steepening trends, substantial gains during flattening trends despite higher risk, and disciplined risk avoidance under neutral conditions.

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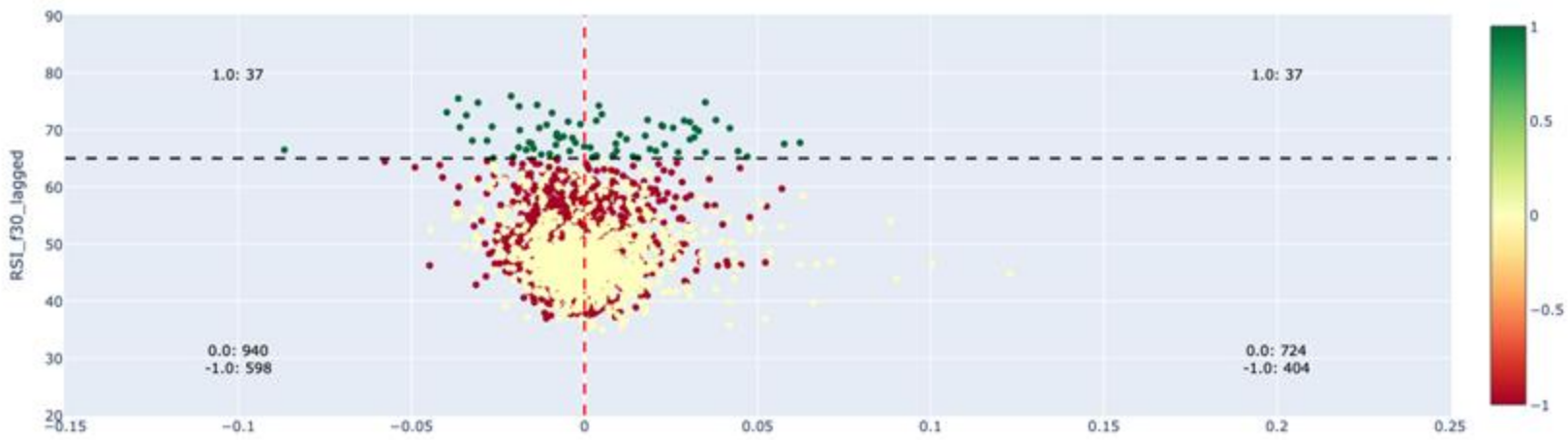
Quantitative Insights: RSI Lagged Values and Signal Clustering

Difference of f30 and f60 vs. RSI with Quadrant Frequencies



The distribution validates the strategy's effectiveness by showing a favorable risk-reward profile with positively skewed returns for steepening trends, substantial gains during flattening trends despite higher risk, and disciplined risk avoidance under neutral conditions.

RSI-based strategy outperforms SPY. Demonstrating its effectiveness in capturing term structure momentum.

Cumulative RSI Flag Strategy Returns

Backtest Performance (2007-2017)

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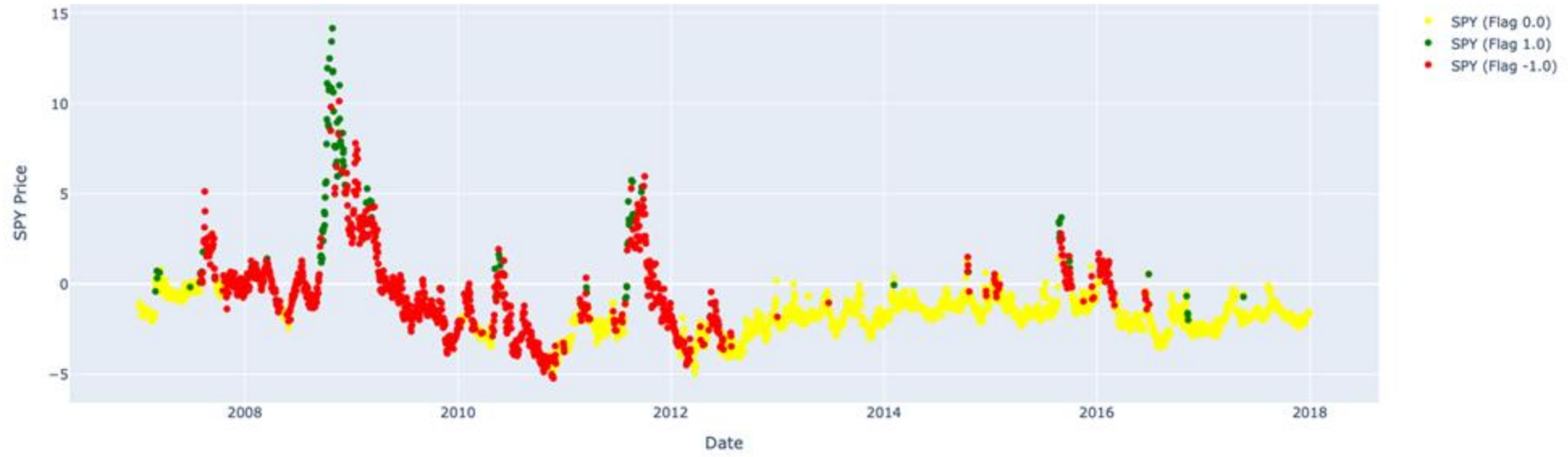
Performance Comparison RSI Strategy vs. SPY

Metric	RSI Strategy	SPY
Annualized Returns	19.43%	8.16%
Volatility	5.25%	19.97%
Sharpe Ratio	1.320	0.492
Sortino Ratio	1.104	0.601
Max Drawdown	-23.11%	-55.18%
Skew	-0.411	0.199
Correlation to SPY	0.8492	1.000

F1-VIX Strategy: Leveraging Spread Dynamics to Predict and Capitalize on Volatility Trends

VIX Price with Different Colors Based on F1-VIX Flag Lagged

Backtest Performance (2007-2017)



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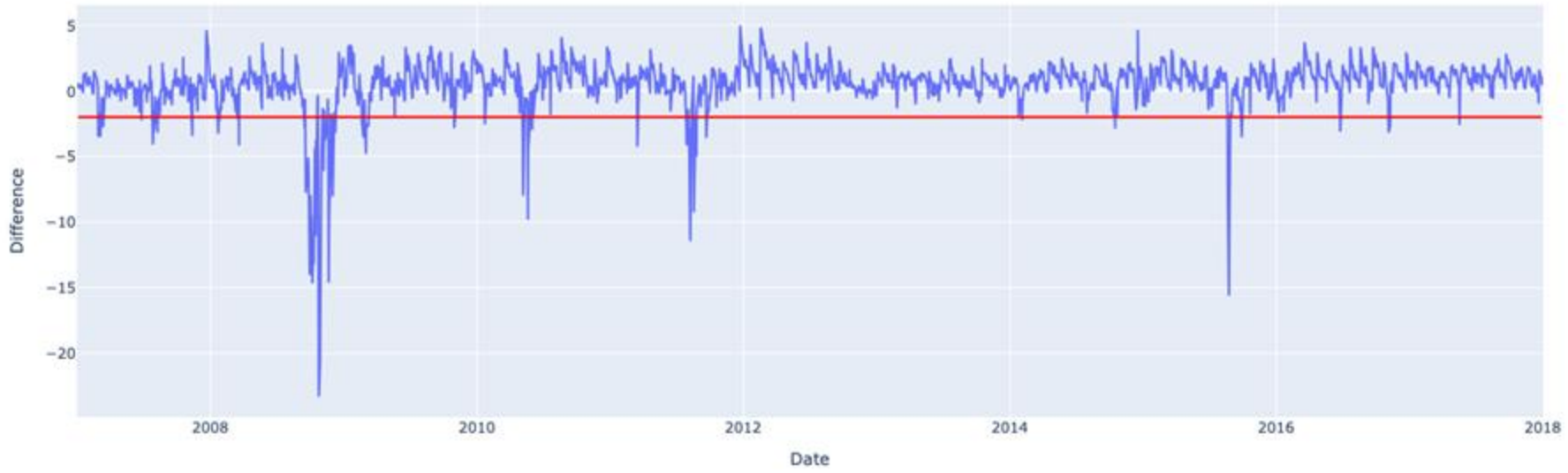
F1-VIX Strategy: Leveraging Spread Dynamics to Predict and Capitalize on Volatility Trends

Difference between F1 and VIX

Backtest Performance (2007-2017)



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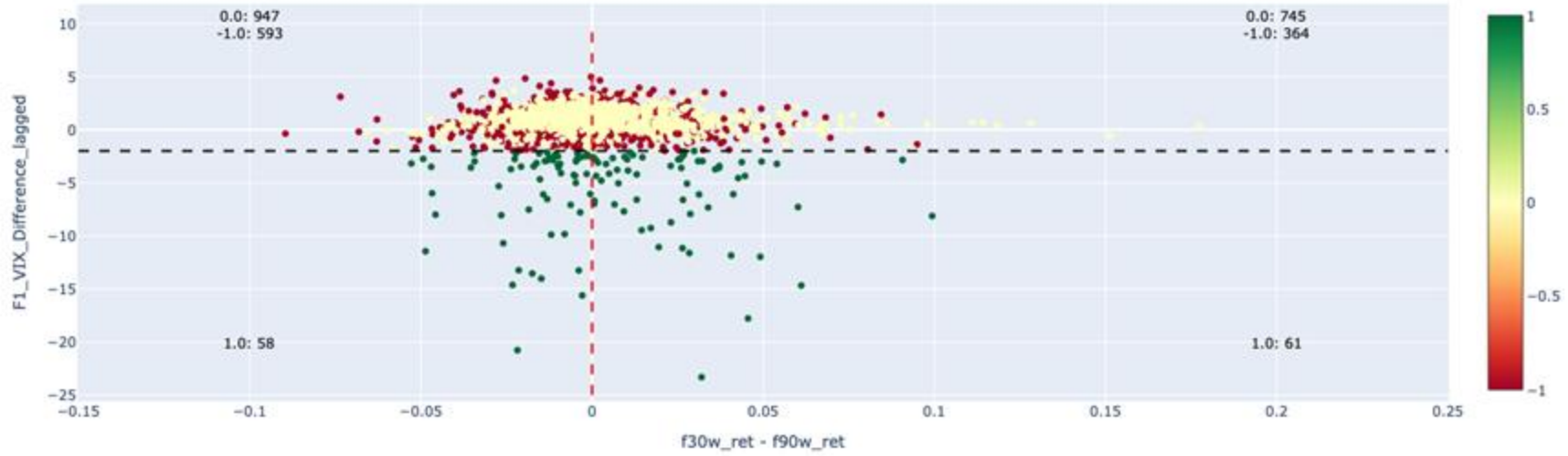
F1-VIX Strategy as a Quantitative Approach to Capturing Volatility Trends

Difference of f30 and f60 vs. F1-VIX with Quadrant Frequencies



The F1-VIX strategy uses the lagged difference of the F1-VIX spread to identify steepening, flattening, or neutral market trends, guiding precise long, short, or neutral positions in VIX futures for adaptive and profitable investing.

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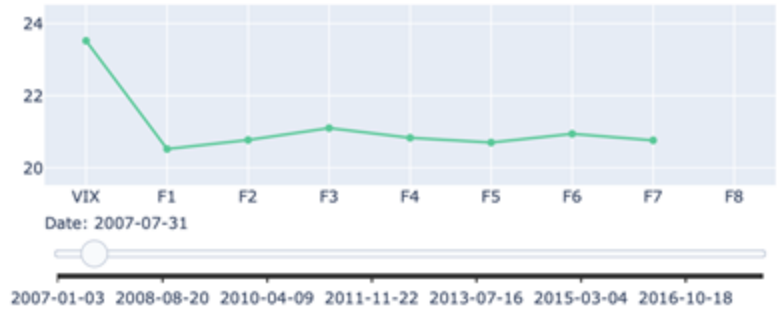
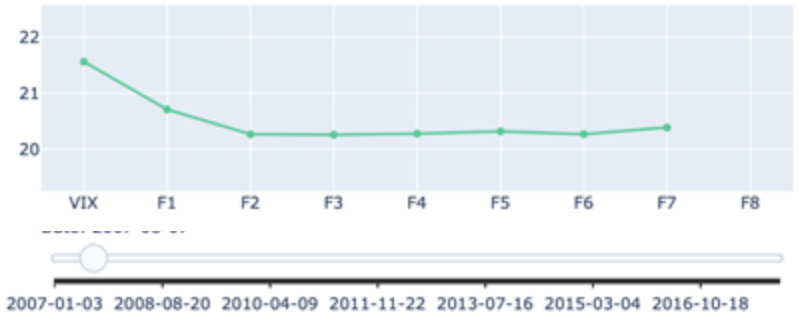
Visualizing Market Dynamics: The F1-VIX Spread as a Predictive Tool

VIX Futures Term Structure



VIX Futures Term Structure



Flag	RSI Lagged	f30	F1 (f30)	F2 (f60)
1 (green)	<-2	-	Long	Short
-1 (red)	>-2	> 20	Short	Long
0 (yellow)	>-2	< 20	-	-

Trading Decision Criteria

The strategy leverages VIX futures term structures and the F1-VIX spread to align trading signals with real-world market dynamics. Visual aids, including scatterplots, histograms, and signal timelines, validate the strategy's predictive model, showcasing its ability to adapt to changing conditions and focus on high-return, low-risk scenarios.

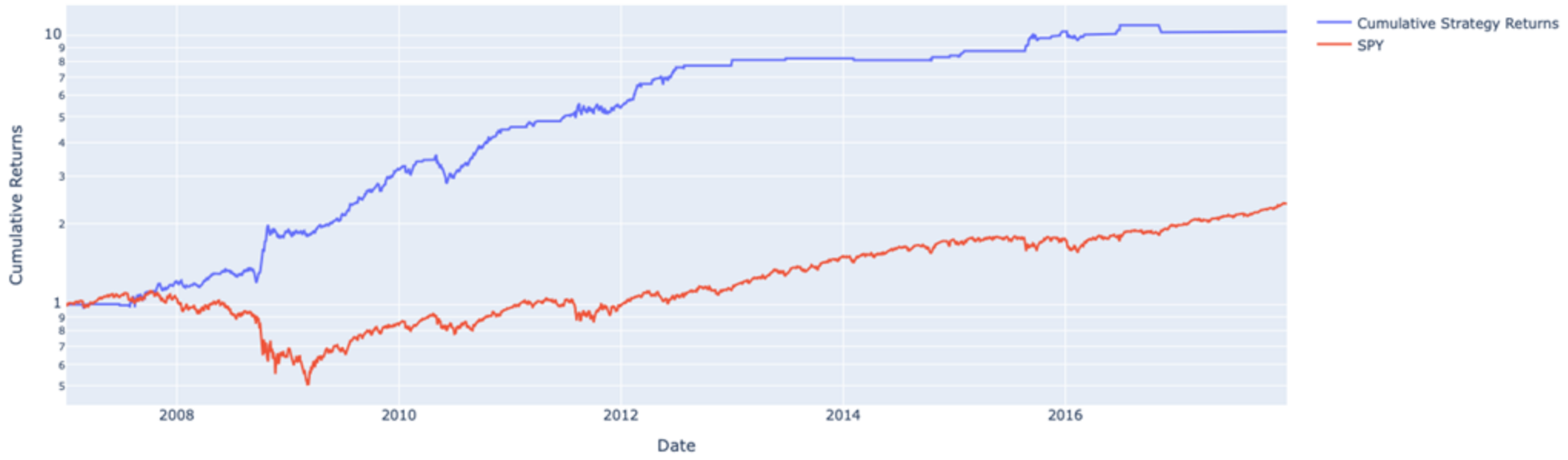
Performance Comparison F1-VIX vs. SPY

Metric	F1-VIX-BASED STRATEGY	SPY
Annualized Returns	37.01%	8.16%
Volatility	20.32%	19.97%
Sharpe Ratio	1.652	0.492
Sortino Ratio	1.453	0.601
Max Drawdown	-34.84%	-55.18%
Skew	0.009	0.199
Correlation to SPY	0.9182	1.000

F1-VIX Strategy: Delivering Superior Returns with Dynamic Risk Management

Cumulative F1-VIX Strategy Returns

Backtest Performance (2007-2017)



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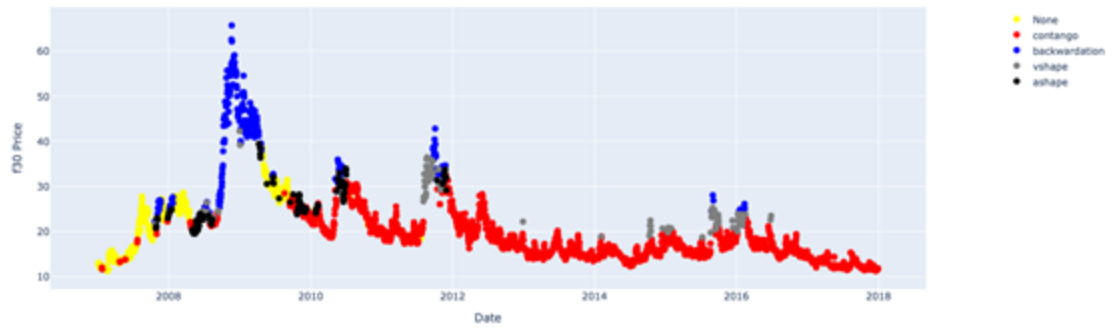
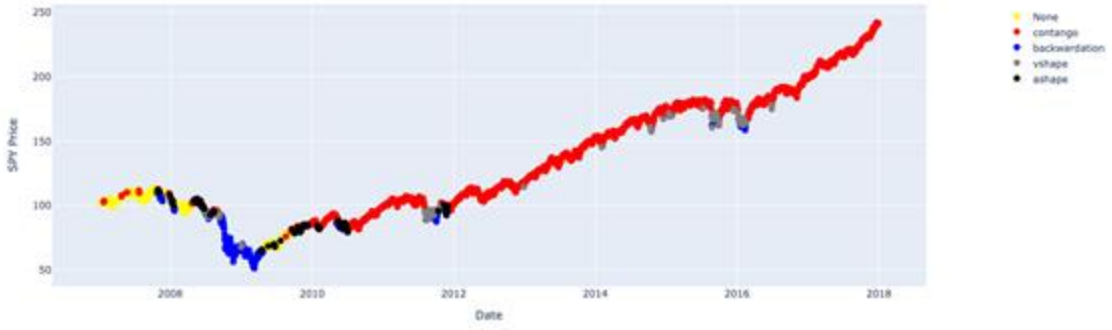
Regime-Based Indicator Strategy for Adaptive Trading

f30 Price with Regime



SPY Price with Regime



Criteria	Regime Shape
F1 < F4 ≤ F7	**Contango**
F1 > F4 > F7	**Backwardation**
F1 > F4 < F7	**V Shape**
F1 < F4 > F7	**A Shape**

Trading Decision Criteria

The regime-based strategy categorizes the VIX term structure into shapes like Contango, Backwardation, A Shape, and V Shape to identify market conditions and align trading positions, leveraging these structural patterns for dynamic and informed trading decisions.

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Performance Comparison Regime-Based Strategy vs. SPY

Metric	Regime-Based Strategy	SPY
Annualized Returns	16.45%	8.16%
Volatility	12.85%	19.97%
Sharpe Ratio	1.249	0.492
Sortino Ratio	1.581	0.601
Max Drawdown	-31.17%	-55.18%
Skew	0.790	0.199
Correlation to SPY	0.9531	1.000

Structured Regime-Based Strategy for Exploiting VIX Term Structure Dynamics

Cumulative Regime-Based Strategy Returns

Backtest Performance (2007-2017)

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